PORTUGUESE AIR FORCE AEROMEDICAL CENTRE APPROACH TO MANAGEMENT OF SLEEP/WAKEFULNESS OF AIRCREW

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1-Introduction

The first time we noticed that we had a problem with the lack of guidelines to manage the sleep/wakefulness disturbances among aircrew was during the time we had a P3-P stationed in Sigonnela (IT) flying integrated in a NATO force. They were there during periods of 15 days flying following a schedule that we can see an example in Figure 1.

According to this we sent there a flight surgeon that detected two major problems: the lack of regularity on shiftwork and overworkload.

We have to add to the hours we can see in the example, 3 more hours of pre-flight briefing and two hours of debriefing, all with only one crew. An additional problem was the location of the rooms of the NCOs, either air crewmembers or ground crew-members, situated near the flight line, submitted to high levels of noise and very difficult to get dark enough during the day, limiting a good or sufficient period of sleep.

All the personnel had difficulty to get asleep; this difficulty was fought in two ways, either one not really good: drink large amounts of alcoholic beverages or exercise near exhaustion.

After the survey we decided to propose to send a flight surgeon to stay with the crew for one deployment (15 days). During this stay he would brief the crew about the problems with shiftwork, sleep and fatigue and at the same time help them, if necessary, on the resolution of sleep problems. We thought to use temazepam as an aid to correct the sleep cycle, this authorization was denied.

The second situation we had the same problem was with the C-130 flying to Africa (mainly Angola and S. Tomé). Usually they leave Lisbon between 19:00 and 01:00. The total flight time is around 12 hours, what implies one night with less sleep or no sleep, although the crew is an extended crew (usually one more senior pilot).

In 1997 the Aeromedical Center with the Psychology Center decided to propose, again, a study on the subject of aircrew fatigue, but we are waiting for clearance to go ahead.

In 1999, April, we were alerted, by the F-16 detachment in Aviano that was questioned by the USAF Flight Surgeon about the portuguese policy on the use of hypnotics and stimulants

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on pilots. As we don't have any regulation concerning the subject I was sent to Aviano to talk with the Flight Surgeon. I was briefed on the USAF protocols. At that time we didn't make any trial with our pilots because they were already in operations.

The main problem we have in PoAF is the divorce of Flight Surgeons and the planning of military operations. This is a handicap that we are trying to overcome.

2-What we do now

During the CRM courses we give a lecture on "Circadian rhythms, sleep and fatigue".

In this lecture we explain what are the circadian rhythms, how they suffer alterations and the effects of those, the physiology of sleep and its alterations and definition and causes of fatigue and the means to fight against it. After the lecture that has a duration of about 50 minutes we give to the crewmembers a practical exercise, that they have to solve. The objectives are the detection by them of the situations that can produce fatigue, sleep deprivation and also circadian rhythms disruption, what are the effects of it and what solutions they propose.

All the flight surgeons stationed at the Air Bases are instructed to give briefings about the same subject. These are, or should be, briefings of about 5-10 minutes during the morning Operational Group (similar to a Wing) briefing.

3-What to do in the future?

The present situation is changing in a fast way. In May we received a message from the Operational Command asking for a study to change the regulations about flying and crew rest times. This is the opportunity to begin the study of the medication against crew fatigue and to define the rules about its use during night and sustained operations.

What we intend to do is in first place choose the hypnotic and the stimulant drug to use.

The first approach we did in the Aeromedical Centre is pointing to Zolpidem, like other nations do. About the stimulant we didn't decide what to do.

We will have available, this year, in Portugal the Modafinil. According the research we made in our Centre, probably this will be the drug of choice.

This project will probably start this year.

Figure 1

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